



The Diffusion of Cyber Cafés in Sub-Saharan Africa: Country Case Studies

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ABSTRACT

Information technology use and access in Sub-Saharan Africa continue to increase significantly and has proven to be the major enabler that has helped users access and share information and knowledge resources globally. However, most users' personal access to the internet from home and work place is hugely constrained due to lack of adequate infrastructure and affordability. With per capita incomes averaging less than \$500 in most of Sub-Saharan Africa, families could hardly afford personal computers at home, and, if they do, they can barely afford internet access charges. Although, there is an increase in the number of PC's at work places and homes in most of Sub-Saharan Africa, most are not network and hardly have internet access. It is only recently, that some Sub-Saharan African countries began liberalizing their telecommunication regimes allowing licensing of Internet Service Providers(ISP's). These ISP's and in some cases the incumbent telecommunication company responded to these constraints faced by users by building Internet community access centers called Cyber Cafés. This paper is an exploratory study of the diffusion of Cyber Cafés within the Sub-Saharan African region by studying country cases. Our findings suggest that these Cyber Cafés reduced the constraints faced by users in terms of infrastructure, access to PC's and related ICT's as well as affordability. This increased the number of users from different socio-economic backgrounds accessing and using the Internet for social, political and economic reasons. We also found a gradual and steady increase in Cyber Cafés and the magnitude and quality of service with increasing affordability.

INTRODUCTION AND BACKGROUND

The Internet has become an important medium for social, political and economic activities as well as extending knowledge resources and repositories, enhancing access to information and knowledge sharing in and from Sub-Saharan Africa. Sub-Saharan Africa, home to 32 of the 48 least developed countries in the world, has a population of nearly 659 million people, and spans over twenty-four million square kilometers [13]. Sub-Saharan Africa has historically been associated with inadequate telecommunications infrastructure and low penetration of personal computers per capita.

Access to and sharing of information and knowledge resources is quite limited and often communication cost is quite high due to the inadequacy of telecommunication infrastructure and lack of competitive environment. This lack of competitive environment in the telecommunication sector hinders the rapid diffusion of information, communication technologies (ICT's) especially Cyber Cafés. Most Cyber Cafés in Sub-Saharan Africa are faced with the inability to provide broadband and wireless services, local content and other value added services due to rigid government policies, inadequate skill set, and people are often left with no choice other than be at the mercy of the

incumbent government telecommunication entity- a government monopoly. Government should play a key role in establishing a competitive, private sector led communication market by promoting supportive measures to enhance the capabilities for accessing and enhancing the network infrastructure. [11,12] This will help increase the impact and rapid diffusion of Cyber Cafés in Sub-Saharan Africa.

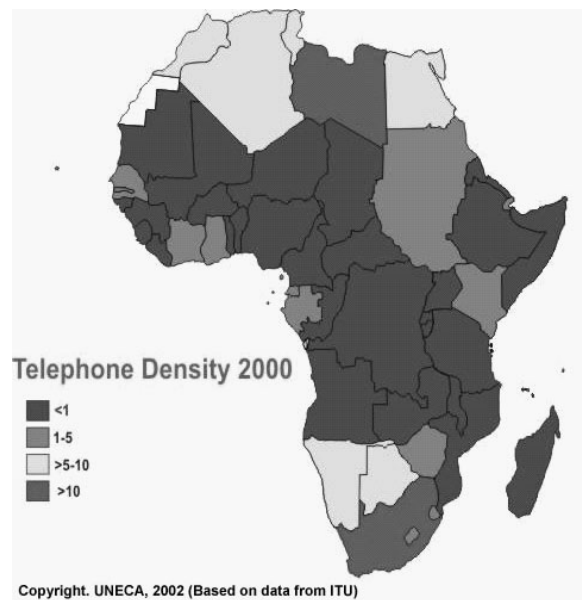
The lack of basic telecommunications infrastructure is a severe hindrance to the growth of the Internet in any country. Previous research has associated the level of a country's basic telecommunications infrastructure with its tele-density [13], defined as the number of land telephone lines per capita. With the rapid adoption of wireless telecommunications media such as cellular telephony and VSAT, this concept will need to be expanded to include other measures of telecommunications intensity. However, the research to date has almost exclusively employed the traditional measurement that considered only land lines.

Sub-Saharan Africa significantly lags behind other regions of the world in terms of teledensity. Given this situation, the prospects of catching up with more developed countries in using the Internet look grim. While there are only about two main telephone lines per 100 persons in all of Africa, there is less than one telephone line per 100 persons for Sub-Saharan Africa (Figure 1). These figures are substantially lower than the 7 per 100 in Asia, 10 in Latin America and the Caribbean, 37 in Europe, and 66 in the United States.

Even though most countries in Sub-Saharan Africa have established Internet links, access is mostly restricted to few users concentrating mostly in the major cities and often quite expensive. Currently, the average total cost of using a local dialup Internet, account for 20 hours a month in Africa is about US\$68 per month (Figure 2). These costs include usage fees and local call telephone time, but not telephone line rental. Due to the monopolistic structure of the telecommunication market in Sub-Saharan Africa and the parochial culture of the providers, this resulted in exorbitant tariffs charged in an age of diminishing costs and low penetration and diffusion rates.

In terms of technology, most of Sub-Saharan African telecommunication switching is still done using analog equipment causing difficulty and inefficiency to network digital traffic using computers. Furthermore, policy makers often view telecommunications as a low priority, only meant for a select few, typically the urban 'elite.' These rigid practices isolated majority of the population from being able to access information and participate in knowledge sharing and access. Through additional restrictive measures that stunt any innovative use of telecommunication technology to improve and expand the infrastructure, especially wireless telecommunications and voice over IP(VOIP) and other emerging technologies, the issue is even more acute in the case of Africa's vast rural population who remain captive by their inability to

Figure 1. Low teledensity within the Sub-Saharan Africa region



access and share information. Overtly regulated and covertly restrictive, information inequality is markedly high due to unscrupulous business practices and capricious and sometimes rigid public policy. This further contributes to high telephone, and by extension, high Internet connection costs (Figure 2).

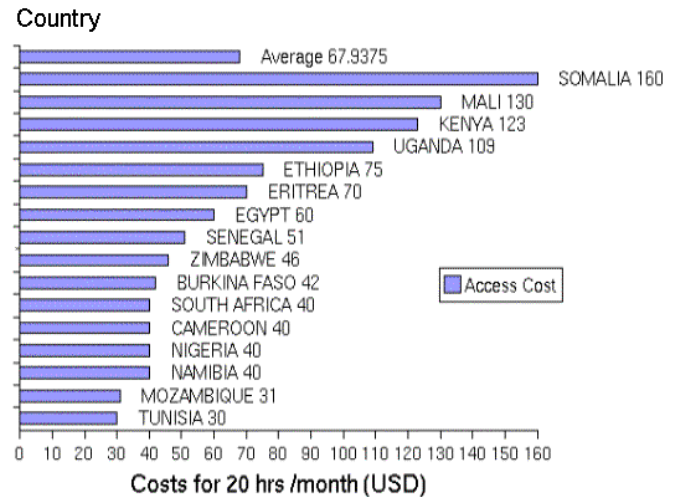
Given the low per capita income (less than \$500) of most inhabitants of sub-Saharan Africa, cost of owning a PC, and high Internet access cost, it is almost impossible for an average family within Sub-Saharan Africa to have a PC and Internet access at home. Hence the evolution of Cyber Cafés enables users in Sub-Saharan Africa to have fairly low-cost Internet access at these Internet community centers.

A Cyber Café is a place where people relax and snack while they surf the Internet. With this new kind of café that started in Europe in the 20th century, million people can communicate easily with friends and family members. [1] Majority of users in Sub-Saharan Africa have family members, colleagues and business associates overseas, this avails an opportunity to interact and exchange information. Most of the user community could hardly afford to call these family members overseas, but these Cyber Café's provide the environment and access via the Internet to e-mail or through chat sessions to communicate. Further, families and friends often send real time family, community and socio-economic and national events before the newspapers or other broadcasting services disseminate the information via print media. Some of the users are also able to access information and knowledge from various part of the world, often country specific information often not shared by their governments and policy makers and too sensitive for the media to report.

The evolution of Cyber Café's is having significant socio-economic and political transformation across these societies. Although, users are now able to access and share useful information and knowledge resources that are valuable and were scarce a decade ago, they are also accessing and sharing information that was considered culturally a "taboo". Thus, users are exposed to the good and bad of the Internet and exposed to different foreign cultures, some of which are having quite positive social impacts but some are having negative social impacts especially to the Youths.

This paper is an exploratory study of the diffusion of Cyber Cafés within the Sub-Saharan African region by studying country cases. Our findings suggest that these Cyber Cafés reduced the constraints faced by users in terms of infrastructure, access to personal computers and related information technology devices as well as affordability. This increased the number of users from different socio-economic backgrounds accessing and using the Internet for social, political and economic reasons.

Figure 2. Internet dialup access cost [13]



COUNTRY CASE STUDY ON THE EVOLUTION OF CYBER CAFÉS IN SUB-SAHARAN AFRICA

Tanzania

A country of 33 Million people, Tanzania improved its technological infrastructure, ranking 13th among all African nations in 2000 with 13 ISPs and over 3000 Internet accounts. [3] The number of cyber cafes grew fast, Dar-Es-salaam alone counts about 100 Cyber cafés. Even though most Cyber cafés have experienced a drop in the retail Internet charges from US \$1.25 to US \$0.625 per hour, there is still a profit. [4] Video conferencing facilities exist in many places like Auvionics in Mwanza and Next Call's Internet boutique in Dar-es-salaam [5], and people make telephone calls at a cheaper cost via the net. [4] The government prohibits the use of VOIP, however, enforcement is unsuccessful. This situation is expected to continue until the Tanzania Telecommunications Company Limited (TTCL)'s exclusivity ends in 2005. [4]

Cyber cafés with 18 hours a day operations are evolving mainly as family businesses, however, few emerge as side businesses. The users tend to be mostly non-Tanzanian. Tanzanian users are aged between 14 and 22 and mostly male. [4] However, the participation of women in the Internet boom is through Cyber cafés and is increasing. A large number of women are becoming customers and users in the Cyber cafés around the country and many own Cyber cafés in Dar-Es-salaam. [7] Tanzania is faced with costly and inadequate educational institutions, professional teachers and Kiswahili teaching tools are a rarity. E-Academy is aiming to use Cyber cafés to create on-line E-learning communities, expected to alleviate the demands on the limited educational needs and infrastructure. [6]

Nigeria

Nigeria, one of the biggest African economies continue to experience many advances in the IT sector. Nigeria has a population of about 130 million citizens, bordered by Benin, Cameroon, Chad, Niger, and the Gulf of Guinea; and it is divided into 36 states and one territory. [26] Cyber cafés provided the environment to make communications easier and increase the global contact for many Nigerians and expatriate communities. In 2002, Nigeria had about 2.3 million phone lines and 800,000 PC's with 200,000 Internet users. [9] Lagos alone counts more than 310 Cyber cafés. [1] The Nigerian Internet project (NIP) aids to the development of Cyber cafés with the objective to provide "Internet access to every part of Nigeria." [1] The NIP views Cyber cafés as better than the mobile Internet centers that are only available when they come in your community while Internet is used on a daily basis. The mobile Internet centers travel to allow users to experience the Internet. [8] Further, the NIP has the goal to set up a "mega cyber café in Ilorin" with 84 computers. Another project being implemented through Direqlearn Nigeria Limited. Direqlearn's is involved in the SchoolNet, Nigeria

Digit-Net project, which aims to “equip 35 schools across the country with VSAT Internet access, and provide the school with educational content, train teachers and provide a long term plan for stability.” [25] These facilities will later be converted into Cyber cafés to raise funds to maintain the equipment.

One of the problems found in the Nigeria case study, especially in Lagos, Cyber cafés are used as “hubs” to commit local and international cyber crimes. The government is being pressured by citizens and the International community to solve this serious issue. [8] On the other hand, we found that Cyber cafés have “created direct jobs for over 30,000 and indirect jobs for another 20,000” [21] which boosted the knowledge-based and e-commerce economies. Some of the services offered by Cyber cafés are: training classes in internet and computer usage, web design, web hosting, with special pricing to users that are club members, and to local university students. [11,13] Unfortunately, “the telecommunication infrastructure outside major urban areas are inadequate, resulting in few rural tele-centers and Cyber cafés.” [11,13]

Kenya

As of 2002, Kenya had 31.93 million people. It is surrounded by Ethiopia, Somalia, Sudan, Tanzania, Uganda, Lake Victoria, and the Indian Ocean. [9] Cyber cafés have helped increase the number of internet users and have provided computer literacy. Users faced high telecommunication costs, availability of electric sources, and reliable technical support. [30] With the new plans that are being implemented, Kenya is expecting to see a growth of Internet usage and is exploring the increased learning opportunities through Cyber cafés, and tele-centers. Cyber cafés used to be secretarial bureaus with services like typing, photocopying, and binding and others have been derived from small companies that have added additional computers and entrepreneurs who are starting Cyber cafés. [24] Kenya's Africa Online is replacing the number of E-Touch centers (Kenya Africa Online's brand of Cyber café) by larger E-Touch centers that have at least ten PC's, photocopiers, faxes, telephones, and they are maintained by one or two staff (usually women). [14]

UUNET is willing to provide “free Cyber cafés services to selected rural based colleges and secondary schools as a social responsibility after taking services to major towns of the country” provided the Kenyan government agrees to free the licenses for VSAT connections. [19] However, the Communication Commission of Kenya (CCK) allowed the African Virtual University to set up a VSAT network. The CCK and the US government have been involved in the Kenyan Education Network (KENET), which is working toward connecting universities, colleges, and schools through the use of the internet. [4] Telecommunications costs are usually the greatest operating costs that are incurred by Cyber cafés. [11,13] Main costs are derived from subscription fees to ISPs, and the telephone lines [17] if using dial-up connection, or some Cyber cafés are able to use VSAT links. Unfortunately, these are very expensive and currently Telkom Kenya, the sole Internet backbone, determines who has access to the VSAT services. Recently, low cost two-way VSAT has become available in some areas, offering the possibility of internet and voice connectivity for rural areas, for as little as US \$200 a month. [11,13] There are 72 licensed ISPs in Kenya, and over 32 are now operational. [4] High license fees and conditions limit the number of operational ISPs. [29] Competition among the growing number of Cyber cafés resulted in price decrease for users. [4,14]

Ghana

Ghana, in August 1995, became one of the Sub-Saharan African countries to have full internet connectivity. [8] According to the National Communication Authority (NCA) more than 39 ISPs have been licensed but only 8 are currently operational, and they all operate from Accra, the capital. Over 15,000 users are currently estimated to have direct internet connection and over 500,000 users have shared internet connections-homes, offices, friends and Cyber cafés. [4]

Cyber cafes are found in every part of the country, but the majority are located in Accra where it is estimated that over 100 Internet access centers exist with over 90% occupancy rates in most centers. Internet's growth has been particularly strong in the private sector where it has

become a very important tool for business; the average charge for usage is US \$ 0.02 per minute. [4]

There are two main types of Cyber cafés in Ghana, *Africa Online's* e-touch that provides only e-mail access and the other Cyber cafés where almost all internet and other services such as printing and scanning are provided. *Sankofa café* in Accra is an IT and business consulting firm providing services such as e-mail, networking, computer sales, general secretarial duties, website design and PC repairs- photocopiers, fax, telephones. [5]

The Ghanaian investors in partnership with a US-based technology company have recently launched *I-café, BusyInternet Ghana Ltd.*, providing individuals and businesses with expertise and resources to promote and expand their traditional businesses into e-commerce and other internet related activities. *BusyInternet* promotes education by these Cyber cafés, provide workshops in the center. These activities are in collaboration with local and international agencies promoting development of the high-tech sector, as well as provide web-based learning opportunities to schools and individuals. [9]

VOIP is not permitted in Ghana, however, a lot of customers tend to use this technology to call friends and relatives in other countries. *Nagym Cyber cafés* provides one of the fastest internet services of 64K radio network, which makes VOIP easy and fast. [5] The National Communication Authority has started to shut down some operators using VOIP technology. [4] All universities and polytechnics have access to Internet, with limited access for teaching staff and students, who mostly use Cyber cafés for access.

Implications and Conclusions

Cyber cafés have made large contributions to users and communities in Sub-Saharan Africa. They have provided ICT related services to the communities, expertise for Internet connectivity for schools. Cyber cafés helped increase users and awareness, who are too poor to afford their own PCs' and connectivity to the Internet, thus helping in the efforts to reduce the digital divide and the gender gap in ICT use in Sub-Saharan African countries. In addition, helped introduced ICT markets and education in national economies, as well as provide cheaper and effective way for users to communicate with family members providing an alternative to long distance calling.

In short, the above cases suggest that, albeit the problems faced by Cyber cafés, such as poor and inadequate telecommunication infrastructure; connectivity and affordability problems; rigid telecommunication policies and poor electricity infrastructure in sub-Saharan Africa; Cyber cafés have emerged and are diffusing at a gradual rate. These Cyber cafés have allowed these countries to be connected to the information-based global economy and helped in the access, use and sharing of global information and knowledge resources and repositories.

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